

# **Engineering Motorsports Systems**

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MIT Engineering Systems Symposium

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# Landspeed Racing

- Relatively simple form of racing
  - One car at a time
  - Straight course
  - No prize money
  - Run by volunteers
  - Each vehicle is unique
  - Amateur drivers

# 1960



**Only 193 MPH! in Streamliner**

# Waiting for First Run August 13, 2007



# First Run at Over 200 mph

## August 14, 2007



Photo Courtesy of MG Photo/Graphic

August 19, 2008



August 19, 2008



# Results & Goals

- 2007
  - 206.793 top speed at 2.25 miles
  - 205.569 measured mile top speed
- 2008
  - Broke timing chain on first attempted run – no time
- 2009
  - New racing engine - over 400 more hp
  - Goal – beat own best performance ++

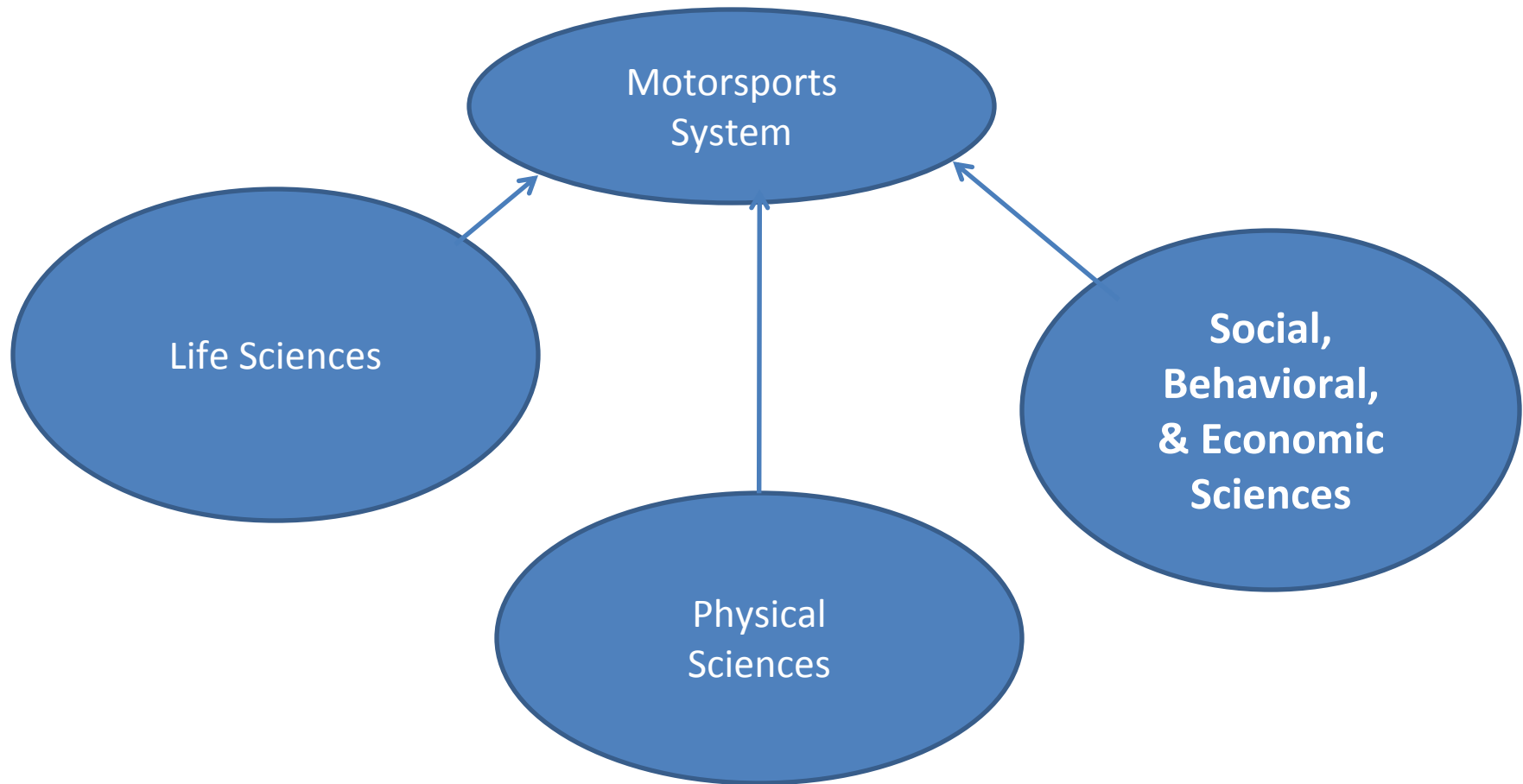
# Serendipity

- Systems architecting and engineering emphasis at same time as personal experience in the driver's seat.
- Related this to courses at USC.
- Students picked up ideas for term projects.
- Idea – how about basing a course on motorsports systems?
- Found similar interests among INCOSE members leading to a motorsports working group (MSWG).
- MSWG purpose is to create a generic course syllabus for use in multiple universities.

# Approach

- “Climb into the car with me and let’s learn together”
- Study what the professionals do in NASCAR, Formula 1, Drag Racing, DARPA, etc.
- Use Formula SAE competition as a learning/laboratory experience
- Textbook – “The Physics of NASCAR”
- Systems architecting and engineering principles illustrated by motorsports

# What is our science base?



# Status

- Course is on the books for fall 2009 and has already met the minimum number of students required for a course.
- Combination of undergraduate and graduate engineering students enrolled from five different majors.
- Require students to have a passion for some aspect of motorsports.
- It is an experiment! Stay tuned!